REMARKS/ARGUMENTS

Reconsideration of the above-identified patent application is respectfully requested in view of the foregoing amendments and the following remarks. Claim 3 has been amended. Claims 1 - 13 remain in the application.

Claim 3 was rejected under 35 U.S.C. §112, second paragraph, as being indefinite and failing to particularly point out and distinctly claim the subject matter which Applicant claims as the invention. Claim 3 has been amended to include the respective "woofer loudspeaker driver" and "tweeter loudspeaker driver" in combination with the low pass and high pass filters, respectively. This topology is supported in the instant specification at page 24, lines 6 - 11. In addition, the erroneously recited L-C combination is replaced by the technically correct R-L combination. This amendment of claim 3 overcomes its rejection under 35 U.S.C. §112, second paragraph.

Claims 1 - 10, and 13 were rejected under 35 U.S.C. §102(b) as being anticipated by United States Patent No. 4,771,466 for MULTIDRIVER LOUDSPEAKER APPARATUS WITH IMPROVED CROSSOVER FILTER CIRCUITS, issued September 13, 1988 to Richard Modafferi, the Applicant in the present application. MODAFFERI '466teaches a crossover network wherein at least the high-pass and band-pass filter elements exhibit brick wall, infinite band edge slopes at both the upper and lower edges. In other words, ALL high-pass and band-pass band edge slopes in MODAFFERI '466 are effectively infinite. Nowhere in MODAFFERI '466 s the concept of a "relaxed" (i.e., non-infinite), relatively shallow lower band edge slope in a high-pass or band-pass element of the crossover network, as recited in instant claim 1 taught or suggested. In the Specification, page 34, lines 1 - 23, Applicant clearly relates the present invention to his earlier work:

> "The present invention described herein consists of two separate stages of creativity, namely the inventor's

> infinite slope technology of the prior art, and the modification of the prior art by one or more of the techniques:

1) the addition of at least one series connected constant resistance network at the input terminals of the crossover filter system;

2) the use of infinite slope methods for the upper (higher frequency) band-edge of low-pass and band-pass filters, and **OPTIONAL** use of infinite slope method for high-pass filters; and

3) the **OPTIONAL** use of infinite slope filter means for lower band-edge frequencies of band-pass filters." [emphasis added]

As used by Applicant, the term optional indicates that the strict brick wall slope requirements at the indicated filter edges (i.e., the lower edge of high-pass and band-pass filters) may be relaxed. MODAFFERI '466, in point of fact, not only fails to teach the relaxed lower slope of the present invention, it teaches away by demanding infinite lower band edge slopes.

The Examiner states that MODAFFERI '466 teaches "a high-pass filter (14, Figure 3; column 8, lines 30 - 33) operatively connected to said signal input and to said tweeter, said high-pass filter having a relatively shallow lower frequency slope (column 8, lines 25 - 20 [sic])." (Office Action page 4, lines 3 - 5) Applicant was confused by this citation as it did not appear to teach "a relatively shallow lower slope," as recited in instant claim 1.

In a phone conversation with the undersigned on January 31, 2005, Examiner Faulk indicated that she believed the MODAFFERI '466 citation should have been column 10, lines 25 - 30. However, column 10, lines 25 - 33 recite:

"The frequency response of the individual drivers of the FIG. 3 system is illustrated in the chart of FIG. 7. This chart represents close microphone tests on individual drivers, with all other drivers open or shorted. As those skilled in the art understand, the term "close microphone" refers to a technique for measuring the sound output of a loudspeaker diaphragm by placing the microphone very close to the diaphragm, typically ¼" to ½"."

The slopes shown in MODAFFERI '466 FIG. 7 are those of the drivers, NOT the response of a crossover network for controlling the bandwidth of energy provided thereto. Applicant is unaware of ANY statement in his MODAFFERI '466 patent which could reasonably be interpreted to teach or suggest a relaxed lower slope in either a high-pass or band-pass filter section. The entire purpose of MODAFFERI '466 was to provide a crossover design exhibiting brick wall band edge slopes in both the upper and lower slopes of at least the high-pass and band-pass filter elements.

The design taught and claimed in the instant application have made possible loudspeaker systems that provide an improved listening experience compared to loudspeaker systems built in accordance with only the infinite slope technology of Applicant's prior art (i.e., MODAFFERI '466). These improvements are created by two distinct improvements to Applicant's prior infinite slope crossover design. First, compared to his prior art design, input impedance of the speaker system is held more uniform across the entire range of audio frequencies applied to the speaker system. Second, lower band edge slopes of high-pass and band-pass filters are relaxed (i.e., allowed to have a more shallow or non-infinite slope) (instant claim 1) compared to the brick wall, "infinite" lower band edge slopes of the designs of MODAFFERI '466.

In historical perspective, the pioneering work of Mr. Modafferi in creating a practical cross-over network approximating brick wall response as taught in the MODAFFERI '466 patent was believed at the time by many to be the ultimate design in crossover networks. However, listening tests performed on speaker systems built using cross-over networks having the then novel design described in the MODAFFERI '466 patent left Applicant believing that an improvement in the sound of the speaker systems was still possible. Through methodical analysis and experimentation, Applicant determined that relaxing the lower edge slope requirements of high-pass and band-pass filter sections feeding the tweeter and midrange drivers, respectively, actually improved sound from the loudspeaker systems. This is discussed in detail in the instant application.

Because MODAFFERI '466 fails to teach the relaxed lower slope of a high-pass filter, the rejection of claim 1 under 35 U.S.C. §102(b) as being anticipated by MODAFFERI '466 is respectfully traversed. Claims 2 - 10 and 13, all depending from independent claim 1, merely recite additional limitations to an allowable base claim. Consequently, claims 2 - 10 and 13 also are believed allowable.

Claims 11 and 12 were rejected under 35 U.S.C. §103(a) as being unpatentable over MODAFERRI '466. As discussed hereinabove, MODAFFERI '466 fails to teach or suggest the limitation of "a relatively shallow lower frequency slope", recited in instant independent claim 1. In fact, as previously stated, MODAFFERI '466 teaches away from the present invention. Those of skill in the art at the time of the invention of the subject matter of the present application continued to believe that filter element band edge slopes in at least the high-pass and band-pass filter elements should be as steep as possible to create a brick wall filter response characteristic. The present invention certainly provides an unexpected benefit not foreseen by those of skill in art at the time of invention.

As claims 11 and 12 depend from claim 1, to provide a prima facie case of obviousness, MODAFERRI '466 would need to obviate the complete subject matter of claims 11 and 12, including the limitations recited in independent claim 1. There is no suggestion in MODAFFERI '466 for "a relatively shallow lower frequency slope in" in the high-pass filter. In fact, the opposite is true. For at least the reasons discussed hereinabove, MODAFFERI '466 fails to render the invention obvious. Consequently, a prima facie case of obviousness has not been made and the rejection of claims 11 and 12 under 35 U.S.C. §103(a) as being unpatentable over MODAFFERI '466 is respectfully traversed.

Applicant believes that, as amended, claims 1 - 13 are now allowable and respectfully requests that claims 1 - 13 be allowed and the application passed to issue.

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